



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,689	03/18/2004	Bradley I. Todd	HES 2003-IP-010245U1	6170
29920	7590	01/10/2007		
JOHN W. WUSTENBERG P.O. BOX 1431 DUNCAN, OK 73536			EXAMINER COY, NICOLE A	
			ART UNIT	PAPER NUMBER
			3672	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/803,689	Applicant(s) TODD ET AL.	
	Examiner Nicole Coy	Art Unit 3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-34,38,41-69 and 71-94 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-34,38,41-67,71-81 and 84-94 is/are rejected.
- 7) ☒ Claim(s) 68,69,82 and 83 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/11/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-6, 11, 18-20, 22, 32-34, 38, 41, 42, and 45-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Cooke, JR. (US 2004/0231845).

With respect to claims 1 and 38, Cooke, JR. discloses a disposable downhole tool or a component thereof comprising an effective amount of biodegradable material such that the tool or the component desirably decomposes when exposed to a wellbore environment; wherein the tool comprises a frac plug, a bridge plug, or a packer, and wherein the biodegradable material comprises a degradable polymer (see paragraph [0033]).

With respect to claim 3, Cooke, JR. discloses that the degradable polymer comprises an aliphatic polyester (see paragraph [0034]).

With respect to claim 4, Cooke, JR. discloses that the aliphatic polyester comprises a polylactide (see paragraph [0034]).

With respect to claim 5, Cooke, JR. discloses that the polylactide comprises poly(L-lactide), poly(D-lactide), poly(D,L-lactide), or combinations thereof (see paragraph [0034]).

With respect to claim 6, Cooke, JR. discloses that the biodegradable material comprises one or more compounds selected from the group consisting of polysaccharides; chitin; chitosans; proteins; aliphatic polyesters; poly(lactides); poly(glycolides); poly(epsilon-caprolactones); poly(hydroxybutyrates); poly(anhydrides); aliphatic polycarbonates; poly(orthoesters); poly(amino acids); poly(ethylene oxides); and polyphosphazenes (see paragraph [0034]).

With respect to claim 11, Cooke, JR. discloses that the biodegradable material comprises poly(lactic acid) (see paragraph [0034]).

With respect to claim 18 and 41, Cooke, JR. discloses that the biodegradable material is selected to achieve a desired decomposition rate when the tool is exposed to the wellbore environment (see paragraph [0033]).

With respect to claims 19 and 42, Cooke, JR. discloses that the wellbore environment comprises an aqueous fluid (see paragraph [0023]).

With respect to claim 20, Cooke, JR. discloses that the tool or the component is self-degradable (see paragraph [0033]).

With respect to claims 22 and 47, Cooke, JR. discloses that the decomposition is due to hydrolysis (see paragraph [0020]).

Art Unit: 3672

With respect to claims 32 and 48, Cooke, JR. discloses that the decomposition comprises loss of structural integrity of the tool or the component (see paragraph [0033]).

With respect to claims 33 and 49, Cooke, JR. discloses that the decomposition comprises loss of functional integrity of the tool or the component (see paragraph [0033]).

With respect to claims 34 and 50, Cooke, JR. discloses that the tool or the component decomposes within about a predetermined amount of time (see paragraph [0033]).

With respect to claims 45 and 46, the fluid can be applied to the tool before, during or after the downhole operation.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-12, 21, 23, 24, 51-62, 64, 71, 72, 85, 86, and 89-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooke, JR in view of Grigsby et al. (US 20050056425).

With respect to claim 7, Cooke, JR. does not disclose that the degradable polymer comprises polyanhydrides. Grigsby et al. discloses that polyanhydrides can be

Art Unit: 3672

used as suitable degradable materials (see paragraph [0027]). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. by using a polyanhydride as a degradable polymer as taught by Grigsby et al. in order to use a degradable polymer with superior degrading properties in the wellbore.

With respect to claim 8, Cooke, JR. does not disclose that the biodegradable material comprises one or more compounds selected from the group consisting of poly(adipic anhydride), poly(suberic anhydride), poly(sebacic anhydride), poly(dodecanedioic anhydride), poly(maleic anhydride), and poly(benzoic anhydride) (see paragraph [0036]). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. by using the components mentioned above as taught by Grigsby et al. in order to use a suitable degradable polymer in the wellbore.

With respect to claim 9, Cooke, JR. does not disclose plasticizers. Grigsby et al. discloses using plasticizers (see paragraph [0033]). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. by including plasticizers as taught by Grigsby et al. in order to provide more effective compatibilization of the melt blend, improved processing characteristics and control and regulation of the sensitivity and degradation of the polymer.

With respect to claim 10, Cooke, JR. in view of Grigsby et al. teach that the plasticizers comprise derivatives of oligomeric lactic acid (see paragraphs 33 and 34).

With respect to claim 12, Cooke, JR. in view of Grigsby et al. teach that the biodegradable material comprises poly (phenyllactide).

With respect to claim 21, Cooke, JR. is silent as to the temperature of the wellbore. Grigsby et al. discloses that degradable polymers degrade in wellbore temperatures of at least about 200 degrees Fahrenheit. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. by using the degradable tool in temperatures of at least 200 degrees Fahrenheit as they would be suitable in these temperatures.

With respect to claims 23, 51, 71, 72, and 86, Cooke, JR. does not disclose a chemical solution that catalyzes decomposition. Grigsby et al. discloses adding a catalyst to the biodegradable material in order to increase the rate of degradation. It would have been obvious to modify Cooke, JR. by adding a catalyst as taught by Grigsby et al. in order to speed up the rate of degradation. With respect to claims 23 and 72, the solution is inherently stored in a container before inserted into the wellbore.

With respect to claims 24, 52, and 85, Cooke, JR. in view of Grigsby et al. teaches using an acidic fluid as a catalyst in order to make polyester matrices more bulk eroding (see paragraph [0028]). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. in view of Grigsby et al. by using an acidic fluid as taught by Grigsby et al. in order to make the polyester matrix more bulk eroding.

With respect to claims 53-55, the fluid can be applied before, during, or after downhole operation.

With respect to claim 56, Cooke, JR. discloses that the chemical solution is applied to the tool or the component thereof via a timer-controlled operation (see paragraph 33).

With respect to claim 57-59, the chemical solution can be applied mechanically, hydraulically, or electrically.

With respect to claim 60, the chemical solution can be applied using communication means.

With respect to claim 61, the chemical solution is applied to the tool or the component thereof by dispensing the chemical solution into the wellbore (see paragraph 33).

With respect to claim 62, Cooke, JR discloses that the dispensing step comprises injecting the chemical solution into the wellbore (see paragraph 32).

With respect to claim 64, Cooke, JR. in view of Grigsby et al. that the dispensing step comprises: lowering a conduit into the wellbore; and flowing the chemical solution through the conduit into the tool (see paragraph 28).

With respect to claim 89, Cooke, JR in view of Grigsby et al. teach that the applying step comprises dispensing the chemical solution into the wellbore (see paragraph 28).

With respect to claim 90, Cooke, JR. in view of Grigsby et al. teach that the degradation comprises loss of structural integrity of the tool or the component thereof (see paragraph 33).

Art Unit: 3672

With respect to claim 91, Cooke, JR. in view of Grisby et al. teach that the degradation comprises loss of functional integrity of the tool or the component thereof (see paragraph 33).

With respect to claim 92, Cooke, JR. in view of Grigsby et al. teaches that the tool or the component thereof degrades within about a predetermined amount of time (see paragraph 33).

With respect to claim 93, Cooke, JR. in view of Grigsby et al. teaches that the applying step comprises a timer-controlled operation, a mechanical operation, a hydraulic operation, an electrical operation, an operation using a communication means, or a combination thereof.

5. Claims 13-17, 43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooke, JR. in view of Munoz, Jr. et al. (USP 7,036,587 hereinafter "Munoz").

With respect to claims 13 and 43, Cooke, JR. does not disclose a hydrated organic or inorganic solid compound. Munoz discloses adding a hydrated organic or inorganic solid compound to a degradable polymer in order to provide a source of water to degrade the polymer (see column 55-61 and column 6 lines 5-32). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. by including a hydrated organic or inorganic solid compound as taught by Munoz in order to provide a source of water to degrade the polymer.

With respect to claim 14, Cooke, JR. in view of Munoz teach that the hydrated organic or inorganic solid compound comprises hydrates of organic acids or organic acid salts (see Munoz lines 19-32).

With respect to claim 15, Cooke, JR. in view of Munoz teach that the hydrated organic or inorganic solid compound comprises one or more compounds selected from the group consisting of: sodium acetate trihydrate, L-tartaric acid disodium salt dihydrate, sodium citrate dihydrate, sodium tetraborate decahydrate, sodium hydrogen phosphate heptahydrate, sodium phosphate dodecahydrate, amylose, starch-based hydrophilic polymers, and cellulose-based hydrophilic polymers (see Munoz lines 19-32).

With respect to claim 16, Cooke, JR. in view of Munoz teach that the biodegradable material comprises an aliphatic polyester and sodium acetate trihydrate (see Munoz lines 19-32).

With respect to claim 17, Cooke, JR. in view of Munoz teach that the biodegradable material comprises a polyanhydride and sodium acetate trihydrate (see Munoz lines 19-32).

6. Claims 25-31, 63, 73-81, 84, 87, 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooke, JR. in view of Grigsby et al. (2005/0056425) and further in view of Owens et al. (USP 5,607,017).

With respect to claims 73 and 87 Cooke, JR. does not disclose an enclosure for storing a chemical solution that catalyzes decomposition on the tool. Cooke, JR in view

of Grigsby et al. does not disclose an enclosure on the tool. Owens et al. discloses an enclosure (46) for storing a chemical solution (see figure 5). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. in view of Grigsby et al. by including an enclosure for storing a chemical solution as taught by Owens et al. in order to control the rate of catalysis.

With respect to claims 25 and 74, Owens et al. discloses an activation mechanism (28) for releasing the chemical solution from the enclosure.

With respect to claims 26 and 75, Owens et al. discloses that the activation mechanism comprises a frangible enclosure body.

With respect to claims 27 and 76, Owens et al. discloses that the activation mechanism is timer-controlled.

With respect to claims 28-30 and 77-79, Owens et al. discloses that the activation mechanism can be hydraulically, mechanically, or electrically operated.

With respect to claims 31 and 80, means 28 can also be operated by a communication means (see column 3 lines 26-57).

With respect to claim 63, Owens et al. discloses that the dispensing step comprises: lowering a frangible object (46) containing the chemical solution into the wellbore; and breaking the frangible object.

With respect to claim 73, Owens et al. discloses that the enclosure (46) is disposed on tool.

With respect to claims 81 and 94, Owens et al. discloses the enclosure is broken to release the chemical solution (see column 3 lines 51-58).

With respect to claim 84, Owens et al. discloses a conduit (22) extending into the wellbore to apply the chemical solution onto the tool or the component thereof.

7. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooke, JR. in view of Munoz as applied to claim 43 above, and further in view of Grigsby et al.

With respect to claim 44, Cooke, JR. is silent as to the temperature of the wellbore. Grigsby et al. discloses that degradable polymers degrade in wellbore temperatures of at least about 200 degrees Fahrenheit. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Cooke, JR. by using the degradable tool in temperatures of at least 200 degrees Fahrenheit as they would be suitable in these temperatures.

Allowable Subject Matter

8. Claims 68,69, 82, and 83 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

Art Unit: 3672

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 3-12, 18, 19, 22-28, 38, 41, 42, 45-57, 50-57, 61-63, 65-67, 71-77, 81, 85, 86, 87, 92, 93, and 94 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5-16, 18, 19, 32-35, 38, 40, 42-56, 58-60, and 63 of U.S. Patent No. 7,093,664. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to select a packer, frac plug, or bridge plug to use a downhole tool, so as to degrade these tools when done using them and save money on the costs associated with retrieving these parts.

Response to Arguments

11. While Applicant's amendments were sufficient to overcome the previous art rejections, the claims are not in condition for allowance. In addition, this rejection is made non-final due to the new double patent rejection over patent 7,093,664.

Art Unit: 3672


Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole Coy whose telephone number is 571-272-5405. The examiner can normally be reached on M-F 7:30-5:00, 1st F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

nac


Nicole Coy
Primary Examiner